

REMARKS

Introduction

Claims 1-40 and 42-127 were pending in this application.

Applicants have amended claims 1, 26, 40, 71, 102, and 112 to more particularly define the invention. Applicants have cancelled claim 72 without prejudice. No new matter has been added and the amendments are fully supported and justified by the specification.

Reconsideration of this application in light of the following remarks is hereby respectfully requested.

Summary of the Office Action

Claims 1-40, 42-101, and 122-127 are rejected under 35 U.S.C. § 102(e) as being anticipated by Lee et al., U.S. Patent No. 6,266,799 (hereinafter "Lee"). Claims 102-121 are rejected under 35 U.S.C. § 102(e) as being anticipated by Page et al., U.S. Patent No. 6,223,089 (hereinafter "Page"). The Examiner's rejections are respectfully traversed.

Summary of Telephonic Interview

The Examiner and applicants' representative conducted a telephonic interview on June 30, 2005. Applicants and applicants' representative wish to thank the

Examiner for the courtesies extended during the interview. During the telephonic interview, applicants' representative and the Examiner discussed the pending rejections in the present Office Action. No agreement was reached between applicants' representative and the Examiner.

Applicant's Reply to the Rejection of
Claims 1-39 under 35 U.S.C. § 102(e)

Applicants' amended independent claim 1 is directed toward an apparatus for receiving and processing a clock data recovery (CDR) signal. The apparatus contains a programmable logic device (PLD) and processing circuitry at least partly controlled by the PLD circuitry. First input circuitry is configured to receive the CDR signals and second input circuitry is configured to receive an external reference clock signal.

Applicants' amended independent claim 26 is directed toward an apparatus for producing and transmitting a clock data recovery (CDR) signal. The apparatus contains a programmable logic device (PLD) configured to produce data information. Input circuitry is configured to receive an external reference clock signal and output circuitry is configured to use the reference clock signal to produce the CDR signal including the data information.

Lee refers to a multi-phase data/clock recovery system. An incoming data stream is received and synchronized with a generated clock signal to recover data from the data stream.

The Examiner asserts that Lee shows all of the elements of applicants' independent claims 1 and 26. Applicants respectfully submit that Lee does not show or suggest a receiver or a transmitter having input circuitry operative to receive an external clock signal. Lee refers to receiver circuitry that includes a multi-phase clock generator that provides multiple clock phases that are used in the multi-phase data/clock recovery unit (Lee, col. 5, lines 36-43). In contrast, applicants' amended independent claims 1 and 26 receive external reference clock signals. For example, applicants' CDR reference may receive a reference clock signal from the source of the CDR data signal or from another reference clock signal source (Applicants' specification, paragraph 8). Thus, Lee fails to show receiving an external clock signal as required by applicants' amended independent claims 1 and 26.

Further, Lee does not show or suggest an apparatus for producing and transmitting a CDR signal as required by applicants' amended independent claim 26. Lee refers to a transmitter within a system overview (i.e., FIG. 1), but is

silent about the operation or design of transmitter. Thus, Lee fails to show transmitter circuitry having all of the elements of applicants' amended independent claim 26.

Accordingly, for at least these reasons, applicants respectfully request that the rejection of claims 1 and 26 under 35 U.S.C. § 102(e) be withdrawn.

Claims 2-25 and 27-39 are dependent from claims 1 and 26 respectively and are allowable at least because claims 1 and 26 are allowable.

Applicants' Reply to the Rejection of
Claims 40, 42-71, and 73-101 under 35 U.S.C. § 102(e)

Applicants' amended independent claim 40 is directed toward an apparatus for receiving an information signal which includes data information having clock information for the data information embedded in the data information. The apparatus is configured to receive a programmable scale factor, the information signal and a reference clock signal. The reference clock signal is related to the frequency of the clock information embedded in the data information by the programmable scale factor.

Applicants' amended independent claim 71 is directed toward an apparatus for transmitting an information signal which includes data information having clock information for the data information embedded in the data

information. The apparatus is configured to receive a programmable scale factor and a reference clock signal having a frequency related to the frequency of the clock information by the programmable scale factor. Reference clock signal processing circuitry is configured to use the reference clock signal to produce a further reference clock signal having the frequency of the clock information. Data processing circuitry and data signal processing circuitry produce a data signal indicative of the data information and process the signal with the further reference clock signal to produce the information signal.

The Examiner asserts that Lee shows all of the elements of applicants' independent claims 40 and 71. Applicants respectfully submit that Lee does not show or suggest receiving a programmable scale factor and reference clock signal that is related to the frequency of clock information in a data clock signal by the programmable scale factor. Thus, Lee fails to show circuitry configured to receive a programmable scale factor as required by applicants' amended independent claims 40 and 71.

Further, Lee does not show or suggest an apparatus for transmitting an information signal which includes data information having clock information for the data information embedded in the data information as required by applicants'

amended independent claim 71. Lee refers to a transmitter within a system overview (i.e., FIG. 1), but is silent about the operation or design of transmitter. Thus, Lee fails to show transmitter circuitry having all of the elements of applicants' amended independent claim 71.

Accordingly, for at least these reasons, applicants respectfully request that the rejection of claims 40 and 71 under 35 U.S.C. § 102(e) be withdrawn.

Claims 42-70 and 73-101 are dependent from claims 40 and 71 respectively and are allowable at least because claims 40 and 71 are allowable.

Applicants' Reply to the Rejection of
Claims 102-111 under 35 U.S.C. § 102(e)

Claims 102-111 are rejected under 35 U.S.C. § 102(e) as being anticipated by Page. The Examiner's rejections are respectfully traversed.

Applicants' invention, as defined by amended independent claim 102, is directed toward programmable serializer circuitry. The programmable serializer circuitry contains control circuitry that receives a programmable number and input circuitry that received that programmable number of input signals in parallel.

Applicants' invention, as defined by independent claim 112, is directed toward programmable deserializer

circuitry. The programmable deserializer circuitry contains control circuitry that receives a programmable number and input circuitry that receive an input signal that is serially indicative of plural bits of information one after another and stores the programmable number of successive ones of those bits.

Page refers to a method and apparatus for enabling an operator terminal to remotely control a computer system. The method and apparatus includes transmission circuitry that contains a serializer that can accept 16 or 20 bit parallel words and a deserializer that outputs 14 bit parallel words.

The Examiner asserts that Page shows all of the elements of applicants' independent claims 102 and 112. Applicants respectfully submit that Page does not show or suggest a programmable serializer or a programmable deserializer that has control circuitry that receives a programmable scale factor. Thus, Page fails to show all of the elements required by applicants' amended independent claims 102 and 112.

Accordingly, for at least this reasons, applicants respectfully request that the rejection of claims 102 and 112 under 35 U.S.C. § 102(e) be withdrawn.

Claims 103-111 and 113-121 are dependent from claims 102 and 112 respectively and are allowable at least because claims 102 and 112 are allowable.

Applicants' Reply to the Rejection of
Claims 122-127 under 35 U.S.C. § 102(e)

Applicants' invention, as defined by independent claim 122 relates to an apparatus for receiving and processing a plurality of CDR signals, each CDR signal having data and clock information. The apparatus contains a first circuitry and a plurality of second circuitries. The first circuitry produces a plurality of candidate recovered clock signals having phases that are shifted relative to one another. The second circuitries each receive a respective one of the CDR signals and use the candidate reference clock signals to recover the clock information from the CDR signals.

The Examiner asserts that Lee shows all of the elements of applicants' claim 122. Applicants respectfully disagree with the Examiner's contention. Lee does not show or suggest receiving a plurality of CDR signal. Lee also does not show or suggest having a plurality of circuitries each receiving one of the plurality of CDR signal. Rather, Lee only refers to receiving a single CDR signal that is received in a single receiver. Thus, Lee does not show or

suggest all of the elements required by applicants' independent claim 122.

Accordingly, for at least this reason, applicants respectfully request that the rejection of claim 122 under 35 U.S.C. § 102(e) be withdrawn.

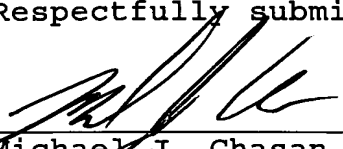
Claims 123-127 are dependent from claim 122 and are allowable at least because claim 122 is allowable.

Conclusion

For at least the foregoing reasons, applicants respectfully submit that this application is in condition for allowance.

Accordingly, prompt reconsideration and allowance of this application are respectfully requested.

Respectfully submitted,



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